



# Behavioural problems in children with enuresis

Seval Birdal<sup>1</sup>, Burak Doğangün<sup>2</sup>

<sup>1</sup>Bakırköy Psychiatric Hospital, İstanbul, Turkey

<sup>2</sup>Department of Child and Adolescent Psychiatry, İstanbul University Cerrahpaşa School of Medicine, İstanbul, Turkey

## Abstract

**Aim:** Enuresis is defined as involuntary or intentional repeated voiding of urine into clothes or bed at least twice a week for a period of three consecutive months in children older than five years old. It is one of the most frequent chronic childhood disorders. The aim of this study was to investigate the frequency of behavioural problems in children with enuresis.

**Material and Methods:** The research compared 30 children aged between 7 and 11 years who had consulted to Bakırköy Prof. Dr. Mazhar Osman Mental Health and Neurological Diseases Training and Research Hospital, Child and Adolescent Psychiatry Clinics and diagnosed with enuresis with their 30 peers who were randomly selected from a state elementary school. The Child Behaviour Checklist was applied to both groups.

**Results:** The subdimension scores of both groups were compared, it was observed that children with enuresis had higher scores compared to their peers in all sub-tests except for the Sluggish Cognitive Tempo, Anxiety Disorders, and Obsessive Compulsive Disorder sub-tests. Enuretic children had higher scores in externalizing ( $p<0.001$ ), internalizing ( $p=0.001$ ) and total problem ( $p<0.001$ ) scales.

**Conclusion:** The results of this study indicate that children with enuresis exhibit behavioral problems with a higher rate compared to their healthy peers. The results are in line with the literature. Moreover, compared to the results of the studies conducted in different countries, significantly higher scores in internalizing problems were obtained. It was thought is possible that this might be related with cultural factors. However, these findings need to be verified with data from larger scale studies. (Turk Pediatri Ars 2016; 51: 142-7)

**Keywords:** Behavioural problems, child behaviour checklist, enuresis, externalizing, internalizing

## Introduction

The term enuresis originates from the Greek expression of “en ourein” which means “to urinate in”. This expression which also means “to wet oneself” meets the conditions where socially unacceptable urination occurs. The International Children’s Continence Society (ICSS) updated the definition of enuresis as urinary incontinence only during sleep (1) Enuresis is one of the most common chronic conditions which is observed in the childhood (2-5). The diagnostic criteria of enuresis are as follows according to the DSM-5 (Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition):

1. Voluntary or involuntary repetitive voiding of urine into bed or clothes,
2. Repetition of this condition at least two times a week or for three consecutive months or occurrence of a clinically prominent distress or dysfunction in social and academic areas as a result of this condition,
3. A chronological age of at least 5 years,

4. The behaviour is not due exclusively to the direct physiological effect of a substance (such as a diuretic, antipsychotic or SSRI).

Enuresis is a serious source of distress both for the child and family. Physical, mental and social factors may be involved in occurrence of enuresis (6). Studies related with the frequency of enuresis conducted in our country have reported prevalences ranging between 13% and 20% (7-10).

Although it has been proposed that enuresis is related with the psychological processes of the child, studies have mostly focused on the frequency of the disorder and treatment processes. Studies addressing the psychiatric diagnoses and symptoms accompanying enuresis and the sense of self in enuretic children have also been conducted, though the number of these studies is few (11-15). A part of the studies conducted with enuretic children have focused on the question whether these children have behavioural problems. In a study conducted by Byrd et al. (11), bedwetting was found to be

**Address for Correspondence:** Seval Birdal E-mail: birdals@gmail.com

**Received:** 27.05.2015

**Accepted:** 06.04.2016

©Copyright 2016 by Turkish Pediatric Association - Available online at [www.turkpediatriarsivi.com](http://www.turkpediatriarsivi.com)

DOI: 10.5152/TurkPediatriArs.2016.2967

correlated with increased behavioural problems even if it occurred once a month. In a study conducted by Von Gontard et al. (12) with children who had daytime and nighttime wetting, 40.1% of the children had at least one ICD diagnosis in both groups (3-fold higher compared to the general population). In the same study, one third of the children who had a problem of bedwetting showed clinically significant behavioural problems (12).

In our country, studies conducted with enuretic children have mostly focused on treatment processes and the prevalence of the disease and the paucity of the data related with studies examining the behavioural problems in enuretic children stands out. The aim of this study was to compare the children who had been diagnosed with enuresis with their peers who had not been diagnosed with enuresis in terms of psychological variables. The study also aimed to investigate the frequency of behavioural problems, internalizing problems and externalizing problems.

## Material and Methods

Approval was obtained from the ethics committee of Bakırköy Prof. Dr. Mazhar Mental Health and Neurological Diseases Education and Research Hospital (07.05.2013/298) for the study. The study population was composed of the children who were evaluated at the Child and Adolescent Psychiatry outpatient clinics in Bakırköy Prof. Dr. Mazhar Osman Mental Health and Neurological Diseases Education and Research Hospital (BMHNNH) and who were diagnosed with enuresis. The sample size was calculated with "G\*Power" 3.1.7. In comparison of the children with and without enuresis in terms of behavioural problems using t-test, it was found that 26 subjects should be included in each group in a confidence interval of 95% with a power of 80% and an effect size of 0.8. The study sample was composed of children aged between 7 and 11 years who continued formal education. The families of the children who presented to the BMHNNH Child and Adolescent Psychiatry outpatient clinic between April 2012 and April 2013 and were diagnosed with "enuresis" according to the DSM-4 TR diagnostic criteria were called by phone and informed about the aim and method of the study. The study group was composed of the children whose parents gave consent for participation. Patient consent form was obtained from the parents of the children who were included in the study.

The control group was composed of age and gender-matched children who attended primary schools

found in the city of Bakırköy. A pre-interview was made with the mothers of the children who would be included in the study and the children who had not referred to any psychiatrist or psychologist and who had no complaint or finding of enuresis were included in the study. The children who experienced the problem of bedwetting after the age of five years were excluded from the study.

The mothers of the children in both groups were asked to fill in a sociodemographic information form prepared by the investigators and the 6-18-year Child and Adolescent Behavior Checklist (CABCL). The Child and Adolescent Behavior Checklist was developed by Achenbach and Edelbrock (13) in 1966 and acquired its final form in 2001. The CABCL which is one of the most commonly used measurement tools aiming to evaluate children's behaviours has been translated to 85 languages. The 2001 edition which is known as the 21st century edition of the CABCL covers the age range of 6-18 years. The 21st century edition for which the Turkish standardization was performed by Erol and Şimşek (14) in 2010 was used in our study.

The scale is composed of two parts as "Social Sufficiency" and "Problem Behaviours". The items related with sufficiency evaluate the sportive activities which the child is interested in and participates in and with the indoor and outdoor performances of the child. The second part of the scale defines the behavioural and emotional problems which may be observed in children and adolescents. The 118 items in this part are ranked by the parents considering the frequency of occurrence in the last six months (0-not true, 1-somewhat true and 2-frequently true).

Two different problem scores as "Internalizing behaviour" score and "Externalizing behaviour" score and the total problem score are obtained from the scale. The Internalizing behaviour group is composed of "Social Introversion/Depression, Somatic Complaints, Anxiety/Depression", the Externalizing behaviour group is composed of "oppositional defiant behaviour and aggressive behaviours" and the Total Problem group is composed of the sum of the Internalizing behaviour, Externalizing behaviour groups and the subscale of "Social problems, Thought Problems and Attention Problems" which is included in neither group (14).

Only the scores obtained from the "Problem Behaviours" part of the scale were included in the statistical analysis and the raw scores were used in statistical analyses. The externalizing and Internalizing problem scores and total problem scores were transformed to t value separately.

The Turkey norms of the scale are considered the same as the ASEBA standard norms. Therefore, the ASEBA norms were taken as the reference in the process of specifying the t value; the t value of 63 which was proposed by Achenbach (2001) was considered the clinical limit.

### Statistical analysis

Statistical analyses were performed using IBM SPSS Statistics Version 20. The frequency and arithmetic mean values which are descriptive statistics were calculated and the standard deviation values were calculated in order to show the distribution of these data around the mean. Kolmogorov-Smirnov and Shapiro-Wilk tests were used to find if the variables showed a normal distribution. Independent t test was used for the variables which showed a normal distribution and Mann-Whitney U test was used for the variables which did not show a normal distribution. The significance value was considered 0,05 in our study.

### Results

The parents of 100 children who were registered in the BMHNNH computer system with a diagnosis of "enuresis" were called for enrollment, 76 of these could be reached and 42 accepted to participate in the study. The children who continued treatment for enuresis or whose therapies were discontinued remained in the study, whereas the children whose bedwetting problem was ended and who had enuresis caused by a specific physical problem (n=9) were excluded from the study. Three of the scales were not included in the analyses, because they were not filled in completely and the sample group was composed of 30 children. Thirty age and gender-matched children constituted the control group in the study. Secondary enuresis was found in 10 of the children included in the study and primary enuresis was found in 20. It was found that seven of the children who were diagnosed with enuresis used medication for treatment during the study. Mixed enuresis was found in one of the children and nocturnal enuresis was found in the remaining 29 children.

No significant difference was found between the enuretic children included in our study and the control group in terms of demographic data (Table 1).

When the CABCL scale subscale scores were compared between the two groups, it was observed that the enuretic children achieved statistically

**Table 1. Comparison of the children with and without a diagnosis of enuresis in terms of socio-demographic variables**

		Mean±SD/ Median	t/z	p
Age (months)	Sample Control	111 110	0.109	0.914*
Number of siblings	Sample Control	1.2±0.72 1±0.64	1.316	0.193**
Family income (monthly/TL)	Sample Control	1 900±889 2 346±1 229	-1.612	0.112**

\*Independent groups t Test

\*\*Mann-Whitney U Test

significantly higher scores compared to the control group almost in all subscales. It is found that there were no significant differences between the two groups only in the subscales of Anxiety Disorder and Obsessive Compulsive Disorder among the subscales structured according to the DSM-IV criteria (Table 2).

When the internalizing behaviour, externalizing behaviour and total problem scores were analysed separately, it was found that the group with a diagnosis of enuresis demonstrated problems with a significantly higher rate in all three groups compared to the control group ( $p=0.001$ ,  $p<0.001$  ve  $p<0.001$ , respectively) (Table 3). The distributions of the children with a clinical level of behaviour problems in both groups are as follows: Seven (23%) of the 30 children in the control group had a clinical level Internalizing behaviour score and 1 (3.3%) had a clinical level total problem score. There was no child with an externalizing behaviour score of clinical level. In the group with a diagnosis of enuresis, there were three children (10%) who had an externalizing problem and 17 children (56.6%) who had an internalizing problem. Eight children (26.6%) had a clinical level total problem score (Table 4).

### Discussion

Studies investigating the factors related with enuresis have indicated that the number of siblings, the family's socioeconomical level and gender are significant risk factors for enuresis (7, 15, 16). In this study, there were no significant difference between the two groups in terms of the relevant variables. This is important in terms of showing that the groups were similar and in terms of the validity of the results.

A significant difference was found in a significant part of the variables between the two groups in the CABCL scale which was filled in by the mothers of the enuretic children. A significant difference was found between the

**Table 2. Comparison of the children who were and were not diagnosed with enuresis in terms of CABCL subscale scores**

		Mean±SD	z	p
Anxiety/Depression	Sample Control	4.2±3.3 1.6±1.8	-3.429	0.001
Mood disorder	Sample Control	3.8±3.1 1.1±1.6	-3.939	0.000
Anxiety disorder	Sample Control	5.3±3.8 3.7±4	-1.838	0.066
Somatization disorder	Sample Control	3.1±2.6 1.7±1.8	-2.278	0.023
Attention deficit hyperactivity	Sample Control	7.1±4.3 4.1±3.4	-2.716	0.007
Oppositional defiant disorder	Sample Control	2.4±2.1 1.2±1.5	-2.205	0.027
Conduct disorder	Sample Control	8.1±5.5 4.6±4.4	-2.849	0.004
Intraversion	Sample Control	5.2±4.4 3.0±2.7	-2.849	0.067
Somatic complaints	Sample Control	5.7±4.6 2.3±2.3	-3.307	0.001
Social problems	Sample Control	4.0±2.8 1.9±1.8	-2.995	0.003
Thought problems	Sample Control	2.1±2.5 0.7±1.1	-2.838	0.005
Attention problems	Sample Control	6.4±3.7 3.8±2.9	-2.658	0.008
Disobedience	Sample Control	4.1±2.4 2.2±1.9	-2.904	0.004
Aggressive behaviors	Sample Control	3.6±4.2 0.8±1.7	-3.399	0.001
Sluggish cognitive tempo	Sample Control	1.7±1.9 0.9±1	-1.652	0.099
Obsessive compulsive disorder	Sample Control	2.0±2.1 1.5±1.5	-0.880	0.379
Posttraumatic stress disorder	Sample Control	7.7±5 4.2±3.2	-2.889	0.004

Mann-Whitney U test

The values written in bold are statistically significant  $p < 0,05$ 

CABCL: child and adolescent behavior checklist

enuretic children and the control group in all subscales except for Anxiety Disorder, Introversion, Sluggish Cognitive Tempo and Obsessive Compulsive Disorder subscales. When the internalizing behaviour, externalizing behaviour and total problem scores were evaluated, it was found that internalizing problems were at a higher level in both groups. Twenty six point six percent of the children diagnosed with enuresis demonstrated behavioural

**Table 3. Comparison of the raw scores in the Internalizing behaviour, Externalizing behaviour and Total Problem subgroups in the CABCL scale in children who were and were not diagnosed with enuresis**

		Mean±SD	z	p
Internalizing behaviour	Sample Control	65.5±11.2 53.0±5.6	-3.200	0.001
Externalizing behaviour	Sample Control	53.3±6.1 44.3±3.4	-3.536	0.000
Total Problem	Sample Control	56.6±21 45.7±12	-3.714	0.000

Mann-Whitney U test

CABCL: child and adolescent behavior checklist

**Table 4. Distribution of the children who demonstrated behavioral problems at a clinical level in the Internalizing behaviour, Externalizing behaviour and Total Problem subgroups in the CABCL scale\***

	Internalizing behaviour	Externalizing behaviour	Total Problem
Control	7 (23.3)**	0	1 (3.3)
Sample	17 (56.6)	3 (10)	8 (26.6)

\*A T value of 63 was considered as the cut-off score.

\*\*Percentage rates are specified in brackets ( ).

CABCL: child and adolescent behavior checklist

problems at a clinical level, whereas this rate was found to be 3.3% in the control group. The internalizing behaviour scores were found to be significant at a clinical level in 56.6% of the enuretic children and the externalizing behaviour scores were found to be significant at a clinical level in 10%. In the control group, no externalizing behaviour problem was found at a clinical level and the internalizing behaviour problem was found with a rate of 10%. In the children who had bedwetting behaviour, the mean score for the internalizing problems was found to be higher than the clinical level (score=65.5). The results obtained in our study were mostly compatible with the results of the studies conducted with different populations using CBCL (12, 14, 17).

Von Gontard et al. (12) investigated behavioural problems in children diagnosed with enuresis using the ICD-10 Disease Classification criteria and CABCL. According to the results of the study, behavioural problems were found at a clinical level in 28.2% of the children. Internalizing problems were found at a clinical level in 22.9% of the study group and externalizing problems were found at a clinical level in 22.1%.

In the study of Liu et al. (18) conducted with 3344 children aged between six and 16 years, it was found that achieve-



ment of toilet training after the age of 4 years was related with higher rates of behavioural, emotional and academic problems. In a long-term, 15-year study conducted by Ferguson et al. (19) with children who had primary or secondary enuresis, it was found that the children whose bedwetting problem continued after the age of 10 years demonstrated behavioural problems with a higher rate compared to the children who quit bedwetting before the age of five years, they had behavioural problems with a higher rate at the age of 13 years even after other factors were controlled and demonstrated anxiety/interoversion with a higher rate at the age of 15 year.

In the study of Chang et al. (20) conducted in Hong Kong, 89 children diagnosed with primary nocturnal enuresis and the control group composed of 131 age and gender-matched children were compared in terms of behavioural problems and the stress variables experienced by the parents. The behavioural problems in children were measured using the CABCL; the internalizing behaviour and externalizing behaviour scores and sufficiency scores were considered in the statistical analysis which was performed based on the raw scores. According to the results of the study, the enuresis group scored higher in the subscales of attention problems, aggressive behaviors and externalizing problems compared to the control group. In the group diagnosed with enuresis, clinical behaviour problems were found with a rate of 24.35%, internalizing problems were found with a rate of 27.92% and externalizing problems were found with a rate of 27.92%. In the control group, the rates of the children who scored at a clinical level in the same subscales were found to be 19.5%, 19.73% and 7.94%, respectively.

Another study in which the CABCL was used in children diagnosed with enuresis was conducted by Van Hoecke et al. (17); 55 children with nocturnal and diurnal enuresis, 56 children with nocturnal enuresis alone and 155 healthy children as the control group were included in this study in which internalizing and externalizing problems were examined in nocturnal and diurnal enuresis in the frame of Five-Factor Model. The results of the study indicated that a marked difference was present between the enuretic group and the control group in terms of the total problem score and a moderate difference was present in terms of internalizing behaviour, externalizing behaviour and attention deficit and hyperactivity scores.

In Turkey, the number of studies investigating behavioural problems in enuretic children is considerably

limited. In the literature search, we could find no study addressing behavioural problems in the Turkish population using CABCL. Buluç (21) reported the frequencies of accompanying psychiatric diagnoses in primary and secondary enuresis nocturna. In this study in which 84 children and adolescents between the ages of six and 18 years were included, accompanying psychiatric diagnoses were specified using the Schedule for Affective Disorders and Schizophrenia for School-Age Children. In the study, the most common accompanying diagnosis in children and adolescents diagnosed with enuresis was found to be Attention Deficit and Hyperactivity Disorder (ADHD) (primary: 29.79%; secondary: 24.32%). In the children who had secondary enuresis, depression was found with a rate of 19.5 %, specific phobia was found with a rate of 17.02%, social phobia was found with a rate of 14.89%, separation anxiety was found with a rate of 12.76% and oppositional defiant disorder was found with a rate of 12.76%. In the group with primary enuresis, specific phobia and oppositional defiant disorder were found with a rate of 16.22% and encopresis, generalized anxiety, separation anxiety and conduct disorder were found with a rate of 10.81%. In the study of Buluç (21), the diagnoses which suggested internalizing problems as additional diagnoses (depression and anxiety disorders) were reported with a higher rate in the children who were diagnosed with enuresis.

The data obtained from the CABCL scale were subjected to PostHoc power analysis, because the sample size of our study was limited. In the PostHoc power analysis performed with the results of the study, the power was found to be above 0.8 for comparisons of internalizing behaviour and total problem scores. However, the desired power could not be achieved in comparisons of the CABCL subscale scores. This should be considered a limitation in the sample size of the study.

In conclusion, the CABCL results of our study suggested that the children who were diagnosed with enuresis demonstrated behavioural problems with a higher rate compared to the control group. These findings were compatible with the literature. However, it was found that the enuretic children included in our study scored much higher in the internalizing behaviour subgroup compared to the studies conducted abroad. It can be proposed that the data obtained in the study of Buluç (21) were in favour of this finding. This suggests the possibility that internalizing problems are observed with a relatively higher rate in the Turkish population due to cultural factors. However, an inter-cultural study (22) involving 7137 adolescents

from Austria, China, Israil, Jameica, Holland and Turkey related with this issue did not indicate to a difference in the inter-cultural distribution of internalizing and externalizing problems. Testing of this finding with studies with a larger sample size in the Turkish population may be helpful in better understanding the relationship between enuresis and psychological problems.

**Ethics Committee Approval:** Ethics committee approval was received from the ethics committee of Bakırköy Prof. Dr. Mazhar Osman Mental Health and Neurological Diseases Training and Research Hospital.

**Informed Consent:** Written informed consent was obtained from parent's of patients who participated in this study.

**Peer-review:** Externally peer-reviewed.

**Author Contributions:** Concept - S.B., B.D.; Design - S.B., B.D.; Supervision - B.D.; Funding - S.B.; Materials - S.B.; Data Collection and/or Processing - S.B.; Analysis and/or Interpretation - S.B., B.D.; Literature Review - S.B.; Writing - S.B.; Critical Review - B.D.; Other - S.B., B.D.

**Conflict of Interest:** No conflict of interest was declared by the authors.

**Financial Disclosure:** The authors declared that this study has received no financial support.

## References

1. Austin PF, Bauer SB, Bower W, et al. Standardization of terminology of lower urinary tract function in children and adolescents: Update report from the standardization committee of the International Children's Continence Society. *J Urol* 2014; 191: 1863-5. [\[CrossRef\]](#)
2. Öy B, Rezaki N, Başoğlu A, Bağcı A, İlgen R. Bir pediatri polikliniğine başvuran ilkökul çocuklarında ruhsal uyum taraması. *Çocuk Genç Ruh Sağlık Derg* 1996; 3: 15-20.
3. Aras Ş, Ünlü G, Taş FV. Çocuk ve Ergen Psikiyatrisi Polikliniğine başvuran hastalarda belirtiler, tanılar ve tanıya yönelik incelemeler. *Klin Psikiyatr Derg* 2007; 10: 28-37.
4. Durukan İ, Karaman D, Kara K, Türker T, Tufan AE, Yalçın Ö. Çocuk ve Ergen Psikiyatrisi Polikliniğine başvuran hastalarda tanı dağılımı. *Düşünen Adam Psikiyatri Nöroloji Bilim Derg* 2011; 24: 113-20.
5. Aktepe E, Demirci K, Çalışkan AM, Sönmez Y. Çocuk ve Ergen Psikiyatrisi Polikliniğine başvuran hastalarda belirtiler ve tanı dağılımları. *Düşünen Adam Psikiyatri Nöroloji Bilim Derg* 2010; 23: 100-8. [\[CrossRef\]](#)
6. Toros F, Avlan D, Çamdeviren H. Enüretik çocukların biyopsikososyal değerlendirmesi *Anadolu Psikiyatr Derg* 2003; 4: 38-43.
7. Dolgun G, Savaşer S, Balcı S, Yazıcı S. Prevalance of nocturnal enuresis and related factors in children aged 5-13 in İstanbul. *Iran J Pediatr* 2012; 22: 205-12.
8. Ünal D, Çetinkaya F, Baştürk M. Kentsel kesimde 7-12 yaş grubunda enürezis nokturna prevalansı ve özellikleri. *Anadolu Psikiyatr Derg* 2001; 2: 175-82.
9. Şahin O. "Erzurum il merkezi ilkökul birinci sınıf öğrencilerinde enürezis sıklığı ve etkileyen faktörler", 2000; Yayınlanmamış tıpta uzmanlık tezi.
10. Varol S. Samsun'da ilköğretim çocuklarında enürezis sıklığı ve enürezisi etkileyen faktörlerin değerlendirilmesi. 2009; Yayınlanmamış tıpta uzmanlık tezi.
11. Byrd R, Weitzman M, Lanphear NE, Auinger P. Bedwetting in USA children: Epidemiology and related behaviour problems. *Pediatrics* 1996; 98: 414-9.
12. Von Gontard A, Mauer-Mucke K, Plücker J, Berner W, Lehmkuhl G. Clinical behavioural problems in day-and night-wetting children. *Pediatr Nephrol* 1999; 13: 662-7. [\[CrossRef\]](#)
13. Achenbach TM, Edelbrock CS. The classification of children's psychiatric symptoms: A factor analytic study. *Psychological Monographs*, 1966.p. 80 (No: 615).
14. Erol N, Şimşek Z. Okul çağı çocuk ve gençler için davranış değerlendirme ölçekleri el kitabı. Ankara: Mentis Yayıncılık, 2010.p. 553-74
15. Carman K, Ceran Ö, Kaya C, Nuhoğlu C, Karaman Mİ. Nocturnal enuresis in Turkey: Prevalance and accompanying factors in different socioeconomic environments. *Urol Int* 2008; 80: 362-6. [\[CrossRef\]](#)
16. Güneş A, Güneş G, Açıık Y, Akıllı A. The epidemiology and factors associated with nocturnal enuresis among boarding and daytime school children in southeast of Turkey: a cross sectional study. *BMC Public Health* 2009; 9: 357. [\[CrossRef\]](#)
17. Van Hoecke E, Dieter B, Johan Vande W, Piet H, Herbert R. Socioeconomic status as a common factor underlying the association between enuresis and psychopathology. *J Dev Behav Pediatr* 2003; 24: 109-14. [\[CrossRef\]](#)
18. Liu X, Sun Z, Uchiyama M, Li Y, Okawa M. Attaining nocturnal urinary control, nocturnal enuresis and behavioural problems in Chinese children aged through 16 years. *J Am Acad Child Adolesc Psychiatry* 2000; 39: 1557-64. [\[CrossRef\]](#)
19. Ferguson DM, Horwood J. Nocturnal enuresis and behavioural problems in adolescence: A 15-year longitudinal study. *Pediatrics* 1994; 94: 662-8.
20. Chang S, Ng CFN, Wong SN. Behavioural problems in children and parenting stress associated with primary nocturnal enuresis in Hong Kong. *Acta Paediatr* 2002; 91: 475-9. [\[CrossRef\]](#)
21. Buluş U. "Primer ve sekonder enürezis nokturnada eşlik eden psikiyatrik tanı sıklıklarının belirlenmesi ve karşılaştırılması. 2009; Yayınlanmamış tıpta uzmanlık tezi. 551-58.
22. Verhulst FC, Achenbach TM, Van der Ende J, et al. "Comparisons of problems reported by youths from seven countries". *Am J Psychiatry* 2003; 160: 1479-85. [\[CrossRef\]](#)